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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,857	03/29/2005	Haruro Tamaki	04601/DH	4324

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EXAMINER	
PEREZ, JAMES M	
ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,857	TAMAKI, HARURO	
	Examiner	Art Unit	
	JAMES M. PEREZ	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

This action is in response to the amendments filed on 11/20/2007.

Currently, claims 9-18 are pending.

Response to Arguments

1. Applicant's arguments with respect to claims 9 and 12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 9, 12, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US 2001/0036221) in view of Suzuki (USPN 7,257,148).

With regards to claims 9 and 12, Sato teaches a device for spread spectrum communication comprising:

a toggle detecting unit (fig. 1: elements 102 through 106) which detects a candidate of a toggle point existing in a carrier of a received signal by correlating between the carrier of the received signal and a pre-held expected signal (fig. 1: element 104); and a demodulating unit (fig. 1: element 107: note that despreading a signal is a type of code demodulation) which demodulates the received signal by

multiplying the received signal by the spread code (paragraphs 66-67) which is shifted according to a shift amount calculated based on the detected candidate (paragraphs 65-67: note that element 107 inherently time shifts the spread code using the input tmg).

Sato does not explicitly teach the pre-held expected signal is a signal including a waveform of the toggle point which is expected to be in the carrier of the received signal and is a signal having length corresponding to 2 chip-times of a spread code or is a signal having a shorter length than 2 chip-times of the spread code.

Suzuki teaches the pre-held expected signal is a signal including a waveform of the toggle point which is expected to be in the carrier of the received signal (figs. 6 and 8: col. 2, lines 1-30: elements 812-815) and is a signal having length corresponding to 2 chip-times of a spread code or is a signal having a shorter length than 2 chip-times of the spread code (fig. 8: 2G chips/s: col. 2, lines 15-20 and col. 3, lines 30-62).

Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to combine the Code Division Multiple Access (CDMA) system of Sato with the Ultra Wide Band CDMA system and method as disclosed in Suzuki in order to create an improved system with increases tolerance to interference (col. 3, line 65 through col. 4, line 5) and improved synchronization timing for high speed signals.

With regards to claims 16 and 18, Sato in view of Suzuki teaches the limitations of claims 9 and 12.

Sato does not explicitly teach the pre-held expected signal is a signal having a shorter length than 2 chip-times of the spread code.

Suzuki teaches the pre-held expected signal is a signal having a shorter length than 2 chip-times of the spread code (fig. 8: 2G chips/s: col. 2, lines 15-20 and col. 3, lines 30-62).

Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to combine the Code Division Multiple Access (CDMA) system of Sato with the Ultra Wide Band CDMA system and method as disclosed in Suzuki in order to create an improved system with increases tolerance to interference (col. 3, line 65 through col. 4, line 5) and improved synchronization timing for high speed signals.

4. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US 2001/0036221) in view of Suzuki (USPN 7,257,148), and further in view of Suzuki (US 2002/0167991: herein referred to as Suzuki 2).

With regards to claims 15 and 17, Sato in view of Suzuki teaches the limitations of claims 9 and 12.

Sato does not explicitly teach the expected signal has a length corresponding to 2 chip-times of the spread code.

Suzuki 2 teaches the expected signal has a length corresponding to 2 chip-times of the spread code (paragraphs 62-65).

Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to combine the Code Division Multiple Access (CDMA) system of Sato with the Ultra Wide Band CDMA system and method as disclosed in Suzuki 2 in order to

create an improved system with increases tolerance to interference and improved synchronization timing for high speed signals (paragraphs 27-29).

5. Claims 10-11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US 2001/0036221) in view of Suzuki (USPN 7,257,148), and further in view of Mitsubishi Electronic Corp. JP 6-90222.

With regards to claims 10 and 13, Sato in view of Suzuki teaches the device in claims 9 and method of claim 12.

Sato remains silent with respect to the device wherein: said toggle detecting unit outputs a toggle signal as a result of detecting the candidate of the toggle point; a candidate of the shift amount which is to be provided to the spread code is calculated based on cross-correlation of the toggle signal and an absolute value of a differentiated value of the spread code; said demodulating unit demodulates the received signal by shifting the spread code with respect to each candidate of the shift amount, and effectiveness of a carrier spectrum of the received signal demodulated in the demodulating unit is inspected.

Mitsubishi teaches said toggle detecting unit outputs a toggle signal as a result of detecting the candidate of the toggle point (paragraph 32-33); a candidate of the shift amount (fig. 1: paragraph 29: note that the circuit of fig. 1 inherently determines a candidate of the shift amount if it is to achieve frequency synchronization) which is to be provided to the spread code (fig. 1: input to element 106 from element 104) is calculated

based on cross-correlation (fig. 2: element 104) of the toggle signal (fig. 1: input to element 104) and an absolute value (fig. 1: element 108: note that the squaring unit will not output any negative numbers therefore it obviously an absolute value) of a differentiated value (paragraph 32) of the spread code; Said demodulating unit demodulates the received signal by shifting the spread code with respect to each candidate of the shift amount (paragraph 40-44), and effectiveness of a carrier spectrum of the receiving signal demodulated in the demodulating unit is inspected (fig. 1: paragraphs 29 and 40-44: note that if the VCO adjusted it's value depending on the control signal from element 110, which inherently evaluates the effectiveness of the carrier spectrum of the receiving signal demodulation unit).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Sato with the teachings disclosed in Mitsubishi in order to establish a more affective frequency synchronization and timing synchronization method using a slide correlator or match filter by shortening the time needed to establish frequency synchronization (paragraph 10).

With regards to claims 11 and 14, Sato in view of Suzuki in further view of Mitsubishi teaches claims 10 and 13 respectively. Sato further teaches the Fourier transformation of the toggle signal and absolute value of the differentiated value of the spread code (**fig. 2: element 202**). The rest of limitations of claim 11 can be found in claim 10 and the rest of the limitations of claim 14 can be found in claim 13.

Teaching References

Note that Sugimoto (USPN 5,579,304) teaches an example a correlation unit that uses a multiplier unit, as evidence by **fig. 5: element 34**.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES M. PEREZ whose telephone number is (571)270-3231. The examiner can normally be reached on Monday through Friday: 9am to 5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JP/
3/17/2008
/Shuwang Liu/
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